UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,044	12/06/2001	Hajime Matsumoto	43247	4952

1609 7590 07/15/2003

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.
1300 19TH STREET, N.W.
SUITE 600
WASHINGTON,, DC 20036

EXAMINER
PUTTLITZ, KARL J

ART UNIT	PAPER NUMBER
1621	4

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/003,044	MATSUMOTO ET AL.	
	Examiner	Art Unit	
	Karl J. Puttlitz	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *06 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

(A) The content of the particular application disclosure;

(B) The teachings of the prior art; and

(C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. See M.P.E.P. § 2173.02.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the resultant reaction liquid". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See M.P.E.P. 2143.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,414182 to Shingai et al. (Shingai).

The invention is drawn to a process for producing hydroxyalkyl (meth)acrylate by reacting (meth)acrylic acid with alkylene oxide o produce the hydroxyalkyl

(meth)acrylate, further comprising recovering unreacted (meth)acrylic acid by distillation and recycling the recovered (meth)acrylic acid as raw material for the reaction.

Shingai teaches "an addition reaction between the carboxylic acid and the alkylene oxide is carried out in the presence of a catalyst." See column 2, lines 30-31.

Examples of the carboxylic acid usable in Shingai include "acrylic acid, methacrylic acid, acetic acid, propionic acid, butyric acid, maleic acid, fumaric acid, succinic acid, benzoic acid, terephthalic acid, trimellitic acid, and pyromellitic acid, but acrylic acid and methacrylic acid (which are generically referred to as (meth)acrylic acid) are particularly preferable. In addition, the alkylene oxide, usable in the present invention, preferably has 2.about.6 carbon atoms, more preferably 2.about.4 carbon atoms. Examples thereof include ethylene oxide, propylene oxide, and butylene oxide. Among them, ethylene oxide and propylene oxide are preferable, and ethylene oxide is particularly preferable." See paragraph bridging columns 2 and 3.

Importantly, Shingai teaches recycling at recycling alkylene oxide or the carboxylic acid, either separately or together. Specifically, the references teaches that "raw carboxylic acid and the raw alkylene oxide into the reactor, they may be added from their separate lines, or they may be premixed together in such as piping, a line mixer, or a mixing tank and then added into the reactor. In addition, in the case where a reactor outlet liquid is circulated into a reactor inlet, or in the case where an unreacted residue of the alkylene oxide or carboxylic acid is recovered and then recycled, these liquids may be mixed with the raw carboxylic acid or the raw alkylene oxide and then added into the reactor. However, in the case where the raw carboxylic acid and the raw

alkylene oxide are added from their separate feeding lines into the reaction liquid, the molar ratio in the reaction liquid is such that the carboxylic acid is excessive near an inlet into which the carboxylic acid is added, therefore it is preferable that the above raw materials are premixed together in such as piping and then added into the reactor." See column 3, lines 41-57.

Shingai also teaches purification of the final product by removal of the raw starting materials, e.g., by ditillation: "[t]he conversion in this addition reaction is often less than 100%, therefore generally such as a portion of the carboxylic acid or alkylene oxide remains unreacted in the reaction at the end of the reaction. Thus, the above reaction liquid is led to the step to remove such as these unreacted residues of raw materials from the reaction liquid, and then purified by such as distillation as the subsequent final step, with the result that the aimed hydroxyalkyl ester is obtained." See column 2, lines 30-40.

The difference between Shingai and the claimed inventions is that Shingai does not teach the invention with particularity so as to amount to anticipation (See M.P.E.P. § 2131: "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).).

In the context of obviousness, although the claimed invention may be encompassed by Shingai, this by itself does not render the invention obvious. *In re*

Baird, 29 USPQ 2d 1550, 1552 (Fed. Cir. 1994). However, based on the above, Shingai teaches the elements of the claimed invention with sufficient guidance, particularity, and with a reasonable expectation of success, that the invention would be *prima facie* obvious to one of ordinary skill (the prior art reference teaches or suggests all the claim limitations with a reasonable expectation of success. See M.P.E.P. § 2143).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (703) 306-5821. The examiner can normally be reached on Monday-Friday (alternate).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (703) 308-4532.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

Karl J. Puttlitz
Assistant Examiner

Johann R. Richter, Ph.D., Esq.
Supervisory Patent Examiner
Biotechnology and Organic Chemistry
Art Unit 1621
703-308-4532

July 11, 2003